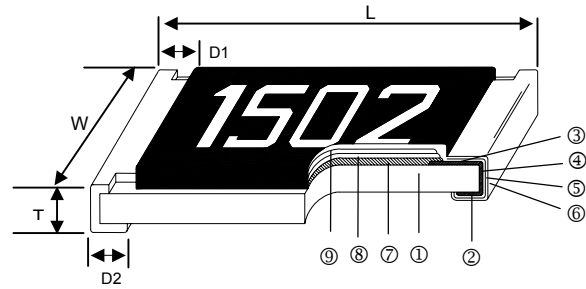


Thin Film Anti-Sulfurated Chip Resistor – TAS Series

Construction



① Alumina Substrate	④ Edge Electrode (NiCr)	⑦ Resistor Layer (NiCr)
② Bottom Electrode (NiCr)	⑤ Barrier Layer (Ni)	⑧ Overcoat (Epoxy)
③ Top Electrode (Cu)	⑥ External Electrode (Sn)	⑨ Marking

Features

- Special passivation for moisture sensitive applications
- Special materials, design, and processing for high sulfur applications
- Tolerances as low as 0.05% and TCR's as low as 10 ppm.
- Test proven immunity to humidity, moisture, and sulfur
- RoHS Compliant / Lead Free

Dimensions

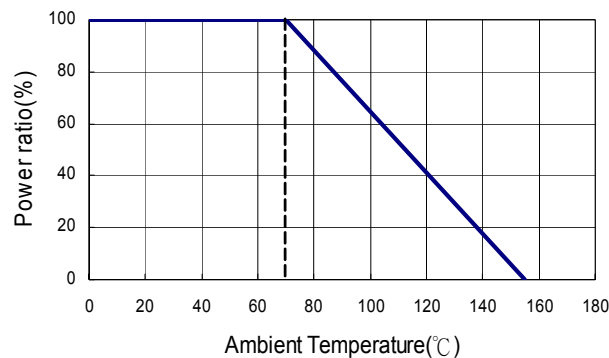
Unit: mm

Type	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
TAS03	0603	1.55±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	1.83
TAS05	0805	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.25	4.71

Applications

- Precision automotive and industrial motor controls, pump controls, dispensing systems
- Welding equipment
- Audio / video amplifiers
- Notebook and laptop motherboard
- Handheld instruments such as printers, scanners, and test instruments
- Base station and remote telecom applications
- Medical test and monitoring equipment.

Derating Curve



Part Numbering

TAS	03	A	T	B		1001	N
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking Code
	03: 0603 05: 0805	A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5% F: ±1%	T: Taping Reel B: Bulk	B: ±10 N: ±15 C: ±25 D: ±50	: Standard	24R9: 24.9Ω 1001: 1KΩ 5003: 500KΩ	: Standard Marking for E96 / E24 N: No Marking

Standard Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	±1 %	
TAS03 (0603)	1/16W	-55 ~ +155°C	50V	100V	24.9Ω - 332KΩ				±25 ±50
TAS05 (0805)	1/10W	-55 ~ +155°C	100V	200V	24.9Ω - 499KΩ				±25 ±50

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Special Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range		TCR (PPM/°C)
					±0.05%	±0.1%	
TAS03 (0603)	1/16W	-55 ~ +155°C	50V	100V	24.9Ω - 12KΩ		±10
					-	12.1KΩ - 332KΩ	±15
TAS05 (0805)	1/10W	-55 ~ +155°C	100V	200V	24.9Ω - 15KΩ		±10
					-	15.4KΩ - 499KΩ	±15

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

Environmental Characteristics

Item	Requirement		Test Method
	Tol. ≤ 0.05%	Tol. > 0.05%	
Temperature Coefficient of Resistance (T.C.R.)	As Spec.		+25/-55/+25/+125/+25°C
Short Time Overload	ΔR±0.05%	ΔR±0.2%	RCWV*2.5 or Max. overload voltage for 5 seconds
	ΔR±0.2% for high power rating		
Insulation Resistance	>1000 MΩ		Apply 100V _{DC} for 1 minute
Endurance	ΔR±0.05%	ΔR±0.2%	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	>7kΩ ΔR±0.5%		
	ΔR±0.5% for high power rating		
Damp Heat with Load	ΔR±0.05%	ΔR±0.3%	40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
	ΔR±0.5% for high power rating		
Bending Strength	ΔR±0.05%	ΔR±0.2%	Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage		245±5°C for 3 seconds
Resistance to Soldering Heat	ΔR±0.05%	ΔR±0.2%	260±5°C for 10 seconds
Dielectric Withstand Voltage	By Type		Max. overload voltage for 1 minute
Thermal Shock	ΔR±0.05%	ΔR±0.25%	-55°C~150°C, 100 cycles
Low Temperature Operation	ΔR±0.05%	ΔR±0.2%	1 hour, -65°C, followed by 45 minutes of RCWV
	ΔR±0.5% for high power rating		
Sulfur Test	±0.5%		3~5ppm H ₂ S, 50±2°C, 91~93% R.H., no power rating for 1000 hrs

■ Reference Standards: MIL-STD-202, JIS-C 5201-1, ASTM-B-809

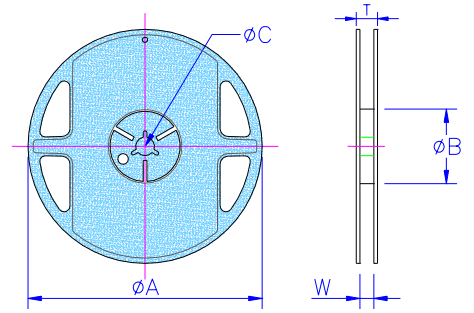
■ Storage Temperature: 25±3°C; Humidity < 80%RH

■ Packaging

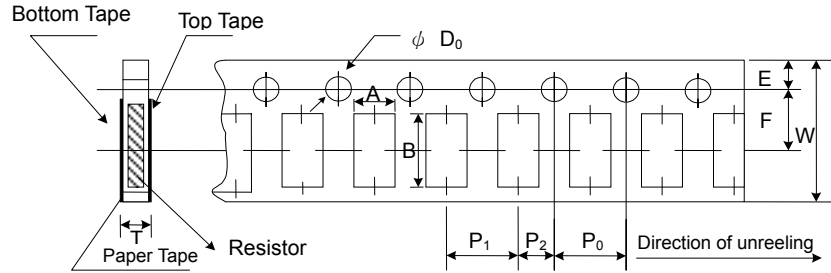
Packaging Quantity & Reel Specifications

Unit: mm

Type	ΦA	ΦB	ΦC	W	T	Paper Tape (EA)	Embossed Plastic Tape (EA)
TAS03	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
TAS05	178.0±1.0	60.0±1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-



Paper Tape Specifications

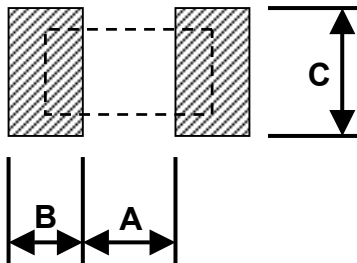


Unit: mm

Type	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	T
TAS03	1.10±0.05	1.90±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.60±0.03
TAS05	1.60±0.05	2.37±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05

■ Recommend Land Pattern

Unit: mm



Type	A	B	C
TAS03	0.80	1.00	0.90±0.2
TAS05	1.00	1.00	1.35±0.2